AUDIT OF FOREST PLANNING AND PRACTICES

Small Business Forest Enterprise Program
South Island Forest District

December 1998

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A. Report from the Board

This is the Board's report on a compliance audit[1] of the Small Business Forest Enterprise Program (SBFEP) in the South Island Forest District[2], which includes the former Port Alberni and Duncan Forest Districts (see map). The operations of the SBFEP are conducted in eight different locations on the east and west sides of southern Vancouver Island.

The audit examined all aspects of the district's forest planning and practices in the SBFEP for the period from May 1, 1996 to June 30, 1997. The audit assessed compliance with the *Forest Practices Code of British Columbia Act* and related regulations (the Code). This audit included a complete examination of operational plans, including all aspects of the forest development plan, silviculture prescriptions, logging plans and fire preparedness plans. It also included a complete examination of forest practices including timber harvesting, silviculture, fire protection, and road construction, maintenance, and deactivation.[3]

Prior to completing this report, the Board considered written representations from the South Island Forest District, as required by section 182 of the Act.

The Board's conclusions are based on an audit of the following plans and practices:

- the 1997 forest development plan - Port Alberni
- the 1996 forest development plan - Duncan
- 35 approved silviculture prescriptions and 30 logging plans
- the 1997 fire preparedness plan
- harvesting of 49 cutblocks
- construction of 16 road segments totalling approximately 18 kilometres, including activities relating to a dry land sort, road widening, access roads and on-block roads for ten timber sales
- construction of seven bridges
- tree planting on 31 cutblocks
- site preparation for planting on 17 cutblocks
- 29 cutblocks where a minimum number of well-spaced trees were required to be established
- 10 cutblocks where a stand of healthy trees was required to be free growing

The audit also examined maintenance and deactivation of a number of roads.

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1 Part B of this document provides background information on the Board's audit program and the process followed by the Board in preparing its report.

2 The report from the auditor (Part C of this document) provides specifics about the operating areas of the SBFEP, the forest planning and practices that were the subject of this audit, and the audit findings.

3 This level of auditing is referred to by the Board as a full scope audit. This was one of three full scope audits conducted in 1997.

Audit Scope Limitation

The district could not identify all roads that were the responsibility of the SBFEP to maintain and deactivate. While technically not a non-compliance, the lack of complete and accurate records for the SBFEP roads make it impossible for the district to know where to maintain and deactivate roads, and therefore to meet its Code obligations. This also increases the risk of adverse impacts occurring to forest resources and road users.

As a result of the incomplete information, the auditor chose not to provide an opinion on SBFEP maintenance and deactivation. This is referred to in the audit as a scope limitation and is considered by the Board to be a serious matter.

Despite the scope limitation, some roads that could be determined as an SBFEP responsibility were examined during the audit. Problems resulting from the lack of adequate maintenance and deactivation on those roads are described below. These problems were determined by the Board and the auditor to be of sufficient magnitude to warrant comment. However, the lack of complete information on SBFEP roads does not allow for any commentary on the full extent of problems that may exist with the SBFEP roads in the district.

The district has informed the Board that it is striving to improve its records, as well as its procedures for inspection and repair scheduling.

Conclusions

Overall

The district's operational planning, timber harvesting, road construction, silviculture and fire protection generally complied with Code requirements. Some aspects of timber harvesting and road construction practices did not comply with Code requirements. Because of the scope limitation, there is no conclusion regarding road maintenance and deactivation.

Operational planning, silviculture and fire protection

Operational planning, silviculture and fire protection practices were found to be in compliance in all significant respects.

Timber harvesting

The significant non-compliance in timber harvesting practices involved the inadequate marking of cutblock boundaries, riparian reserve zones and riparian management zones on a number of cutblocks. In nineteen of the thirty-one cutblocks examined, the marking of

Riparian reserve zone: an area next to a stream, wetland or lake where harvesting of trees is not normally permitted. These reserves are required on some classes of fish streams.

cutblock boundaries was deficient. This increased the risk of unauthorized timber harvesting. Unauthorized harvesting and tree damage outside approved block boundaries occurred on four of the blocks examined.

Riparian reserve zones along streams were narrower than required by the Code in three of the nine examined cutblocks with fish streams requiring reserves. In eight instances, the outer boundaries of riparian management zones were not adequately marked. Trees that were required to be left standing in the management zones were harvested in some of these blocks. The failure to properly mark riparian reserve and management zones resulted in a loss of riparian habitat for wildlife.

> **Riparian management zone:** an area next to a riparian reserve zone, or if there is no reserve zone, that area next to a stream, wetland or lake. Harvesting of trees may be permitted in the management zone.

Road construction

Road construction was found to be in compliance in all significant respects except for one bridge, crossing a fish stream, which was not built in accordance with the approved plan. One end of the bridge was placed fifteen metres from where it was planned. This bridge was located in steep terrain and required extra caution, but was positioned incorrectly during construction. As a result, more material than necessary was exposed and there is an increased risk of sediment being washed into the fish stream.

Road maintenance and deactivation

Due to the scope limitation, the Board cannot provide an overall conclusion on compliance with road maintenance and deactivation requirements. However, the SBFEP roads that were examined were not adequately maintained or deactivated. Bridges were not inspected on a timely basis as required by the Code. The inadequate maintenance and inspection resulted in sediment entering fish streams and, at one site, a concern for user safety. Non-compliance with road deactivation requirements included plugged culverts, missing and ineffective cross-ditches and cracks in the road surface which indicate a risk of future landslides.

Recommendations

The Board recommends that the South Island Forest District take the following actions to ensure operations in the SBFEP comply with Code requirements and protect forest resources.

1. The Board recommends that the district establishes procedures to ensure that the boundaries of cutblocks, riparian reserve zones and riparian management zones are respected and that the riparian reserve zones are the required width. This is necessary to ensure there is no harvesting outside of cutblock boundaries or within riparian reserve and management zones.

   The Board is aware that the *Timber Harvesting Practices Regulation* no longer requires the marking of cutblock boundaries. However, the marking of boundaries is still suggested in the *Boundary Marking Guidebook*.

   The Board requests to be advised how the SBFEP is monitoring cutblock and riparian boundaries to ensure that logging only occurs where it is approved.

2. The Board recommends the district develop and implement operating procedures to ensure that structures, such as bridges, are properly installed, particularly in sensitive areas.

3. The Board recommends that the district complete a comprehensive road and bridge registry to ensure that all the roads and structures that are the responsibility of the SBFEP are accounted for, inspected and maintained on a regular basis.

   The district has advised the Board that it is striving to make improvements in its documentation regarding road maintenance and deactivation. In the Board's opinion, further attention to establishing a complete and accurate record is required.

4. The Board recommends that the district take appropriate actions to ensure adequate inspection and maintenance of roads and bridges is done to prevent problems such as plugged culverts and erosion.

   The district has advised the Board that it is making every effort to improve its procedures for inspection and scheduling of repairs.

5. The Board recommends that the district take appropriate actions to ensure proper road deactivation work, including effective placement of cross ditches, is done to prevent problems such as plugged culverts and cracks in the road surface.

The Board requests that the South Island Forest District advise the Board by March 31, 1999 of the actions taken to implement these recommendations to ensure Code requirements are met in the SBFEP.

Keith Moore
Chair
December 9, 1998

B. Forest Practices Board Compliance Audit Process

Background

The Forest Practices Board conducts audits of government's and agreement holder's compliance with the *Forest Practices Code of British Columbia Act* and regulations (the Code). The Board is given the authority to conduct these periodic independent audits by section 176 of the Act. Compliance audits examine forest planning and practices to determine whether or not they meet Code requirements.

The Board undertakes both "limited scope" and "full scope" compliance audits. A limited scope audit involves the examination of selected forest practices (e.g. roads, or timber harvesting, or silviculture) and the related operational planning activities. A full scope audit examines all operational planning activities and forest practices.

The Board determines how many audits it will conduct in a year, and what type of audits (limited or full scope), based on budget and other considerations. The Board audits agreement holders who have forest licences or other tenures under the *Forest Act* or the *Range Act*. The Board also audits government's Small Business Forest Enterprise Program (SBFEP) which is administered by Ministry of Forests district offices. Selection of agreement holders and district SBFEPs for audit is done randomly, using a computer program, to ensure a fair, unbiased selection of auditees.

Audit Standards

Audits by the Forest Practices Board are conducted in accordance with the auditing standards developed by the Board. These standards are consistent with generally accepted auditing standards.

The audits determine compliance with the Code based on criteria derived from the *Forest Practices Code of British Columbia Act* and its related regulations. Audit criteria are established for the evaluation or measurement of each practice required by the Code. The criteria reflect judgments about the level of performance that constitutes compliance with each requirement.

The standards and procedures for compliance audits are described in the Board's "Reference Manual — Compliance Audits, Version 3, May 1998".

Audit Process

Conducting the Audit

Once the Board selects an audit and decides on the scope of the audit (limited scope or full scope), the staff and resources required to conduct the audit and the period covered by the audit are determined. Board staff also meet with the party being audited to discuss the logistics of the audit before commencing the work.

All the activities carried out during the period subject to audit are identified. This includes activities such as the sites harvested or replanted and road sections built or deactivated during the audit period. The items that comprise each forest activity are referred to as a "population." For example, all sites harvested form the "timber harvesting population." All road sections constructed form the "road construction population". The populations are then sub-divided based on factors such as the characteristics of the sites and the potential severity of the consequences of non-compliance on the sites.

The most efficient means of obtaining information to conclude whether there is compliance with the Code is chosen for each population. Because of limited resources, sampling is usually relied upon to obtain audit evidence, rather than inspecting all activities.

Individual sites and forest practices within each population have different characteristics, such as the type of terrain or type of yarding. Each population is divided into distinct sub-populations on the basis of common characteristics (e.g. steep ground vs. flat ground). A separate sample is selected for each population (e.g. the cutblocks selected for auditing timber harvesting). Within each population, more audit effort (i.e. more audit sampling) is allocated to the sub-population where the risk of non-compliance is greater.

Audit work in the field includes assessments from helicopters and intensive ground procedures such as the measurement of specific features like road width. The audit teams generally spend two to three weeks in the field.

Evaluating the Results

The Board recognizes that compliance with the many requirements of the Code is more a matter of degree than absolute adherence. Determining compliance requires the exercise of professional judgment within the direction provided by the Board.

Auditors collect, analyze, interpret and document information to support the audit results. The audit team, comprised of professionals and technical experts, first determines whether forest practices are in compliance with Code requirements. For those practices considered to not be in compliance, the audit team then evaluates the degree to which the practices are judged not in

compliance. The significance of the non-compliance is determined based on a number of criteria including the magnitude of the event, the frequency of its occurrence, and the severity of the consequences.

As part of the assessment process, auditors categorize their findings into the following levels of compliance:

Compliance — where the auditor finds that practices meet Code requirements.

Not significant non-compliance — where the auditor, upon reaching a non-compliance conclusion, determines that a non-compliance event, or the accumulation and consequences of a number of non-compliance events, is not significant and is not considered worthy of reporting.

Significant non-compliance — where the auditor determines that the event or condition, or the accumulation and consequences of a number of non-compliance events or conditions, is significant and is considered worthy of reporting.

Significant breach — where the auditor finds that significant harm has occurred or is beginning to occur to persons or the environment as a result of the non-compliance. A significant breach can also result from the cumulative effect of a number of non-compliance events or conditions.

Identification of a possible significant breach requires the auditor to conduct tests to confirm whether or not there has been a breach. If it is determined that a significant breach has occurred, the auditor is required by the *Forest Practices Board Regulation* to immediately advise the Board, the party being audited, and the Ministers of Forests, Energy & Mines, and Environment, Lands & Parks.

Reporting

Based on the above evaluation, the auditor then prepares the "Report from the Auditor" for submission to the Board. The party being audited is given a draft of the report before it is submitted to the Board so that the party is fully aware of the findings. The party is also kept fully informed of the audit findings throughout the process, and is given opportunities to provide additional relevant information and to ensure the auditor has complete and correct information.

Once the auditor submits the report, the Board reviews it and determines whether any party or person is potentially adversely affected by the audit findings. If so, the party or person must be given an opportunity to make representations before the Board decides the matter and issues a final report to the public and government. The representations allow potentially adversely affected parties to present their views to the Board.

At the discretion of the Board, representations may be written or oral. The Board will generally offer written representations to potentially adversely affected parties, unless the circumstances strongly support the need for an oral hearing.

The Board then reviews both the report from the auditor and the representations before preparing its final report which includes the Board's conclusions and may also include recommendations, if appropriate.

If the Board's conclusions or recommendations result in newly adversely affected parties or persons, additional representations would be required.

Once the representations have been completed, the report is finalized and released: first to the auditee and then to the public and government.

C. Report from the Auditor

1. Introduction

As part of the Forest Practices Board's 1997 compliance audit program, the Small Business Forest Enterprise Program (SBFEP) of the South Island Forest District was selected for audit. The district's SBFEP was selected randomly from the population of district SBFEP programs within the province, and not on the basis of location or level of performance.

The SBFEP is a program within which the Ministry of Forests awards timber sale licences to small business licensees. The Ministry of Forests, through the district manager, and the individual licensees each have separate but interrelated roles and responsibilities within the small business forest enterprise program:

a) The district manager is responsible for the overall managing and undertaking of the SBFEP, including preparation and giving effect to the forest development plan[1], preparation and giving effect to silviculture prescriptions[2], the majority of road construction, maintenance and deactivation, and meeting silviculture obligations. The district manager can also choose to prepare the logging plans[3] as well as giving effect to logging plans that the small business licensees must follow.

b) The individual small business licensees who have been awarded timber sale licences (TSL holders) through the SBFEP have a number of legal responsibilities, as reflected in their timber sale licence, and other permits (road permits and road use permits), including obtaining approval of the logging plan, some road construction, maintenance and deactivation, and ensuring that all operations, including harvesting, are carried out in compliance with the code.

The district responsibilities and individual TSL holder responsibilities and performance are closely linked. The planning done by the district impacts directly on the TSL holders abilities to adequately carry out their responsibilities. The quality of a licence holder's timber harvesting activities can affect a district's ability to adequately carry out their work, such as silviculture obligations, after logging is completed.

The South Island Forest District was formed with the recent merging of the Duncan and Port Alberni Forest Districts. The SBFEP operations for the South Island Forest District are spread around the district, with recent harvest activities occurring in the following areas:

- Effingham Inlet
- Kennedy River
- Cook and Thames Creek (Horne Lake area)
- Nanaimo River
- Kuitshe Creek
- Chemainus River

- Banon Creek
- Shawnigan

The district's SBFEP operates within the Arrowsmith Timber Supply Area (TSA). The current allowable annual cut is 148,797 cubic metres. The volume available to the SBFEP increases to 256,631 cubic meters after incorporating the "takeback", which provides the SBFEP access to portions of timber within Tree Farm Licences. The SBFEP also operates in areas of Clayoquot Sound. However, no planning or field activities occurred in this area during the audit period described in the section below.

2. Audit Scope

The audit examined the activities of the South Island Forest District in the areas of operational planning (such as forest development plans, silviculture prescriptions and logging plans), timber harvesting, silviculture, fire protection, road construction, maintenance and deactivation, and protection. These activities were assessed for compliance with the *Forest Practices Code of British Columbia Act* and related regulations (the Code), including the transitional provisions of the Code.

The period for which the district SBFEP practices were examined was May 1, 1996, to June 30, 1997. The planning and field practices that were carried out during the audit period and were therefore subject to audit are described below:

- the 1997 forest development plan - Port Alberni
- the 1996 forest development plan - Duncan
- 35 silviculture prescriptions and 30 logging plans
- the 1997 fire preparedness plan
- the harvesting of 49 cutblocks
- the construction of 16 road segments totaling approximately 18 kilometers, which included activities relating to a dry land sort, road widening, the access roads and on-block roads for ten timber sales, and the installation of 7 bridges
- tree planting on 31 cutblocks
- site preparation for planting on 17 cutblocks
- 29 cutblocks with regeneration delay (date by which a minimum number of acceptable well spaced trees need to be growing in an area)
- 10 cutblock with free-growing due (establishment of a stand of healthy trees of a commercially valuable species, the growth of which is not impeded by competition from plants, shrubs or other trees)

Section 3 describes the results of the audit. The Board's "Reference Manual - Compliance Audits, Version 2, May 1997" sets out the standards and procedures that were used for the audit.

2.1 Audit Scope Limitation

The district did not have an accurate or complete record of the roads within the district that are the responsibility of the SBFEP to maintain or deactivate. Therefore, these practices could not be adequately examined to provide an overall opinion regarding compliance with the Code. Only the road maintenance and deactivation activities that the audit could confirm as being the responsibility of the SBFEP program were included within the scope of this audit, which included roads accessing SBFEP activities carried out within the audit period. Section 3.1a further describes the scope limitation.

3. Audit findings

Planning and Practices examined

All aspects of operational planning that supported the South Island District's SBFEP activities during the audit period were examined. Planning activities that occurred during the audit period and were examined in this audit include:

- the Port Alberni Arrowsmith TSA Forest Development Plan (FDP) approved June 10, 1997;
- the Port Alberni TFL 44 "Take Back" FDP approved June 10, 1997; and
- the Duncan FDP and Access Management Plan approved in December, 1996.

In addition, the audit examined 14 of 35 silviculture prescriptions and 16 of 30 logging plans approved during the audit period.

The audit work on selected roads, cutblocks, silviculture and protection activities included assessments from the air using helicopters and ground-based procedures. The audit examined:

- timber harvesting practices on 31 cutblocks and the related planning;
- the construction of 10 road sections totaling approximately 8 kilometers, which includes six bridges and a dryland sort; and
- the planting of 12 sites

The audit also examined 12 blocks with regeneration delay due and three blocks with free growing due to determine if the condition of the blocks was the expected condition.

Findings

The audit found that the silviculture and fire protection planning and practices of the SBFEP of the South Island Forest District complied, in all significant respects, with Code requirements.

In the area of road deactivation and maintenance obligations, no overall conclusions of compliance were reached because of the inability of the district to identify all of the roads that are the responsibility of the SBFEP, as described in section 3.1a. On the SBFEP roads that the audit could identify as an SBFEP responsibility, the audit concluded that the SBFEP roads are not being adequately maintained and that bridges on the SBFEP roads are not being examined on a timely basis. Problems resulting from the inadequate maintenance include sediment entering fish streams and on one site road-user safety is a concern. In regard to road de-activation, deficiencies on a number of older roads that could be identified as the responsibility of the SBFEP include plugged culverts, tension cracking, and, missing and ineffective cross ditches.

In the area of road construction, the audit identified a significant non-compliance relating to the incorrect placement of one end of a bridge constructed in steep terrain. Except for the problem with the construction of the one bridge, the SBFEP road construction planning and practices complied, in all significant respects, with Code requirements.

In the area of timber harvesting, the audit found significant non-compliance relating to 1) inadequate marking of cutblock boundaries and riparian management zones and, 2) unauthorized harvesting and damage to trees. Except for these non-compliance situations, the SBFEP planning and practices related to timber harvesting complied, in all significant respects, with Code requirements.

3.1 Road Maintenance and Deactivation

3.1a Audit Scope Limitation Related to Road Maintenance and Deactivation

The scope of this audit was restricted to exclude any overall opinion on road maintenance and deactivation activities because the district could not identify all roads that are the responsibility of the SBFEP. The insufficient information on the population of roads prevented the audit from establishing with any assurance a sound sampling plan for examining the condition of road maintenance and deactivation of all SBFEP roads.

Some of the considerations which contribute to this restriction of opinion on road maintenance and deactivation are:

1. The district's SBFEP road maintenance responsibilities for the first year of its plans are not described in its forest development plans, as required by Section 15(5) of the *Operational Planning Regulation*.

2. The district temporarily transfers responsibility for maintenance or deactivation to the TSL holders while harvesting is underway. Although a road use permit establishes this transfer of responsibility, the district does not always require the TSL holders to carry out the agreed upon maintenance and deactivation work. These changes to road

permit requirements are not always documented, resulting in the district records indicating a road condition or maintenance plan that was not accurate. The main area of the code to which this non-compliance relates is section 17 of the *Forest Road Regulation* relating to road inspection and maintenance.

3. There is no agreement with MacMillan Bloedel Ltd. on responsibility for maintenance of roads accessing the SBFEP take back areas in Tree Farm License 44.

4. The district has not determined which roads should be inspected as a SBFEP responsibility. It has also not established an inspection schedule which addresses the Code's requirements (section 63 and 64(4)of the Act and sections 17, 20 and 21 of the *Forest Road Regulation*) for inspections to be carried out at a frequency which takes into account the risk to fish streams and road users and that any inadequacies be remedied. Incomplete information on SBFEP roads requiring maintenance and SBFEP roads that are temporarily and semi-permanently deactivated increases the risk of inadequacies with the roads not being addressed.

3.1b Condition of Roads and Bridges Currently in Use

Although there was a scope restriction around road maintenance and deactivation, the audit examined the maintenance and deactivation activities related to the population of roads that could be confirmed as SBFEP roads. From this population, a number of road maintenance issues were identified where district practices did not adequately protect the nearby riparian areas and one site where road-user safety was identified as a concern.

Some of the maintenance problems on SBFEP roads examined for maintenance activities include:

- Klanawa forest service road: the erosion of wooden culverts jeopardizes the stability of the road, increasing the risk to road users and the risk of fill material being deposited into Herman Creek, which is a fish stream.
- Cook Creek forest service road: bridge at 5.5 kilometres encroaches on the fish stream and shows marked erosion after one season as the bridge is not long enough to properly span the creek.
- Cook Creek road accessing A45610: grading has left surfacing material on the road edge adjacent to Cook Creek, fill slopes are raveling and some sediment is entering the fish stream, with pronounced erosion at one culvert.
- Hillcrest forest service road: erosion of ditchline and a plugged culvert.
- Banon road accessing A52535: embankments of bridges have soil fines and small rip rap that will easily erode into a fish stream.
- Christie road accessing A45737: road has not been pulled back sufficiently at a creek draw and armoring to protect against erosion has not been undertaken (a non-fish stream flowing into a fish stream).

- Shawnigan road accessing A46271: bridge construction ramp on stream 2 not seeded or rip-rapped, allowing soil to wash into the fish stream.

The main area of the code to which the non-compliance relates is Section 63(6) of the Act and Section 17 of the *Forest Road Regulation* relating to road inspection and maintenance.

The audit also examined the bridge inspection practices of the South Island SBFEP. The inspection of bridges in the Duncan area do not meet the Code requirement that qualified individuals perform the inspections and prepare written reports. Some bridges in the Port Alberni area have not been inspected by qualified personnel for periods in excess of five years.

The Ministry of Forests regional office indicated that bridge inspections for the former Port Alberni area of the South Island Forest District were recommended in the spring of 1997. At the time of the audit, inspections of forty-nine of the seventy-six identified bridges were completed.

Without adequate bridge inspections by qualified personnel, it is not possible to assess the repairs necessary to minimize harm to users or the environment. The main area of the code to which the above non-compliance relates is section 15(1) of the *Forest Road Regulation*, which states that major culverts and bridges must be inspected every two years (three years for permanent bridges) by qualified inspectors.

3.1c Condition of Roads Previously Deactivated

Section 20 and 21 of the *Forest Road Regulation* require that temporary and semi-permanent deactivated roads be inspected and any inadequacies be remedied. As the district does not keep information on all roads that are temporarily and semi-permanently deactivated, there is an increased risk that inadequacies on these roads may not be identified and addressed. The lack of information on these roads is also in non-compliance with section 15 (5)(c)(iii) of the *Operational Planning Regulation*, which requires roads currently deactivated at a temporary or semi-permanent level to be described in a forest development plan.

Several older roads that could be identified as the responsibility of the SBFEP were examined, including pre- and post- Code deactivation. Roads in these older SBFEP areas were either not deactivated or were temporarily and semi-permanently deactivated roads. Deficiencies noted on these roads include plugged culverts, tension cracking, and missing and ineffective cross ditches.

3.2 Construction of Looper Bridge

The audit found that the Looper Creek bridge was not positioned in accordance with the approved road layout and design. One end of the bridge was placed approximately fifteen meters upstream from its planned position, and at a lower height than planned. The placement of the one end of the bridge in the wrong location increases the risk to the environment as Looper Creek is classified as an S2 fish stream, with steep terrain at the bridge end that was positioned incorrectly.

As road construction continued after the placement of the bridge in the wrong location, considerably more till material was exposed than originally anticipated. There is an increased risk of sediment from the additional till material that was exposed being washed into the fish stream.

This non-compliance was considered to be significant because of the sensitive terrain in the general area, the steepness of the terrain at the bridge location on the fish stream, and the additional material that was exposed as a result of the non-compliance. The main area of the code to which the above non-compliance relates is Section 62 of the Code and Section 11(1)(b) of the *Forest Road Regulation*, as the requirements of the road layout and design were not generally followed regarding the placement of the one end of the bridge.

3.3 Marking of Cutblock Boundaries and Riparian Management Zone Boundaries

Cutblock Boundaries

The audit found that boundary markings were not sufficiently visible during and at the completion of harvest, with deficiencies found on nineteen of the thirty-one cutblocks examined. This included boundary ribbons that were missing, faded, and marked too low in the field to be adequately visible. The deficient boundary marking increases the risk that harvesting will not be conducted as planned, including unauthorized timber harvesting (see section 3.4 on unauthorized timber harvesting).

The main area of the code to which the above non-compliance relates is Section 3(2) of the *Timber Harvesting Practices Regulation*, which requires that the district manager must delineate and mark in the field the cutblock boundaries so that they are visible before, during, and at the completion of harvesting.

Riparian Management Zone Boundaries

i) Riparian reserve zones

Nine of the 31 cutblocks examined had streams within or adjacent that required riparian reserves. A significant portion of three riparian reserve zone boundaries were marked at widths that were narrower than required by legislation. One riparian reserve zone was

established at fourteen meters for most of its length through the cutblock and not the required twenty meters. While no impacts to the stream were visible in the three instances, the area planned to be reserved from harvest was reduced, and there-by eliminating portions of the stream-side wildlife habitat.

The main areas of the Code to which the above non-compliance relates is Section 5(1)(a) of the *Timber Harvesting Practices Regulation*, which requires the marking of the outer boundary of any riparian reserve zone and section 73(1) of the *Operational Planning Regulation* which sets out the minimum widths of riparian reserve zones.

ii) Riparian management zones

In eight instances the outer boundary of riparian management zones were not adequately marked, and resulted in a number of instances where timber that was required to be left standing was harvested. The marking of boundaries was required because the difference between the treatment of the riparian management zone and the adjacent portion of the cutblock was significant.

The main area of the code to which the above non-compliance relates is Section 5(1)(b) of the *Timber Harvesting Practices Regulation.*

3.4 Unauthorized timber harvesting and damage to trees

The audit found timber had not been left standing and undamaged as prescribed on three blocks harvested by the same small business licensee, as well as significant unauthorized harvesting and tree damage on a timber sale harvested by another timber sale licence holder.

The district was aware of trespass occurring on three of the above blocks prior to the audit, and investigations were in progress on all three blocks for issues similar to the audit findings.

The unauthorized harvest and tree damage is considered significant because of the volume involved and the number of instances found. The holders of these four timber sales are in non-compliance with section 96(1) and 67 of the Code, which relate to the unauthorized harvesting of timber.

4. Audit opinion

In my opinion, except for the scope limitation around the maintenance and deactivation of roads and the significant non-compliance items described below, operational planning, silviculture, and fire protection activities of the Small Business Forest Enterprise Program (SBFEP) of the South Island Forest District were in compliance, in all significant respects, with Code requirements as of August 1997.

In the area of road deactivation and maintenance obligations, no overall conclusions of compliance could be reached because of the inability of the district to identify all of the roads that are the responsibility of the SBFEP, as described in section 3.1a. On roads that the audit could identify as an SBFEP responsibility, the audit concluded that the SBFEP roads are not being adequately maintained and that bridges on the SBFEP roads are not being examined on a timely basis. Problems resulting from the inadequate maintenance includes sediment entering fish streams and on one site, road-user safety is a concern. In regard to road de-activation, deficiencies on a number of older roads that could be identified as the responsibility of the SBFEP include plugged culverts, tension cracking, and, missing and ineffective cross ditches.

In the area of road construction, the audit identified a significant non-compliance relating to the incorrect placement of one end of a bridge constructed in steep terrain. Except for the problem with the construction of the one bridge, the SBFEP road construction planning and practices complied, in all significant respects, with Code requirements.

In the area of timber harvesting, except for the significant non-compliance situations described below, the SBFEP planning and practices related to timber harvesting complied, in all significant respects, with Code requirements. The significant non-compliance with Code requirements for timber harvesting relates to the following:

- inadequate marking of cutblock boundaries and riparian management zones;
- unauthorized harvesting and damage to trees on four cutblocks.

In reference to compliance, the term "in all significant respects" recognizes that there may be minor instances of non-compliance that either may not be detected by the audit, or that were detected but not considered worthy of inclusion in the audit report.

Sections 2 and 3 of this report from the auditor describe the audit work that formed the basis for reaching this qualified opinion. The audit was conducted in accordance with the auditing standards of the Forest Practices Board. Such an audit includes examining sufficient forest planning and practices to support an overall opinion of compliance with the Code.

Sucha More, CA
Auditor
Forest Practices Board

Victoria, British Columbia
September 16, 1998

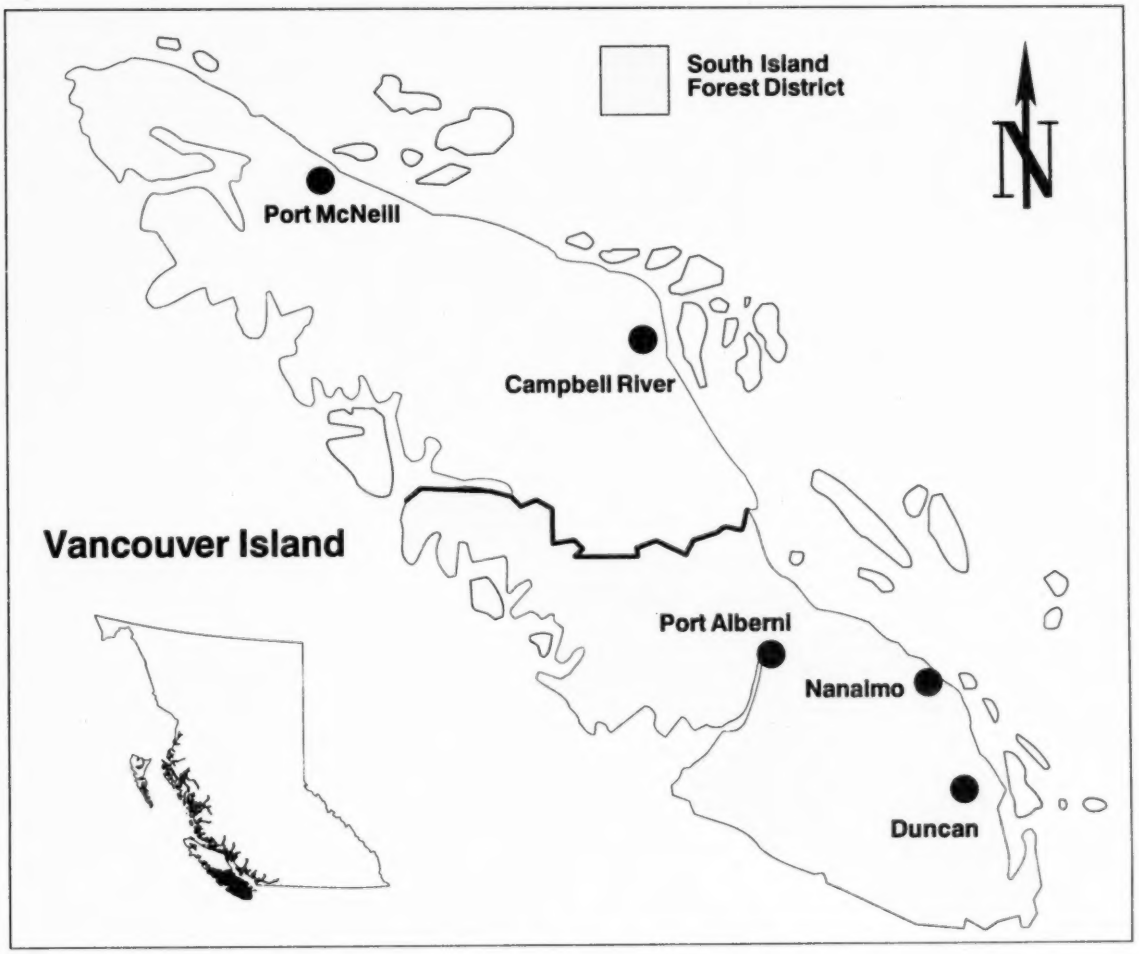
Endnotes

1 A forest development plan is an operational plan which provides the public and government agencies with information about the location and scheduling of proposed roads and cutblocks for harvesting timber over a period of at least five years, except under special circumstances. The plan must specify measures that will be carried out to protect forest resources (including biological diversity, water, fisheries, wildlife and other forest resources). It must also illustrate and describe how objectives and strategies established in higher level plans, where they have been prepared, will be carried out. Site specific plans are required to be consistent with the forest development plan

2 A silviculture prescription is a site specific operational plan that describes the forest management objectives for an area (cutblock - a specific area authorized for timber harvesting). It describes the management activities proposed to maintain the inherent productivity of the site, accommodate all resource values including biological diversity, and produce a free growing stand capable of meeting stated management objectives. Silviculture prescriptions must be consistent with higher level plans that encompass the area to which the prescription applies.

3 A logging plan is an operational plan that details how, when, and where timber harvesting and road construction activities will take place in a cutblock in accordance with the approved silviculture prescription and forest development plan for the area. Information about other forest resource values, plus all current field information for the area, must be clearly shown in the logging plan.

South Island Forest District
Small Business Forest Enterprise Program



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